CLEAN VERSION

[001] ELECTRICAL DRIVE SYSTEM FOR A VEHICLE WITH SKID STEERING

[002] This application is a national stage completion of PCT/EP2004/009614 filed August 28, 2004 which claims priority from German Application Serial No. 103 44 711.3 filed September 26, 2003.

[003] FIELD OF THE INVENTION

[004] The invention concerns an electrical drive system for a vehicle with a skid steering element.

[005] BACKGROUND OF THE INVENTION

[006] Vehicles with a skid steering element are tracked vehicles or wheeled vehicles in which, while driving along curves, the inner drive chain and/or the inner drive wheels are slowed down in each case opposite the outer drive chain and/or the outer drive wheels. In particular, with heavy tracked vehicles, this requires substantial brake performances on the inner drive chain.

[007] There are well-known different systems, which permit this brake performance being supplied to the outer drive chain. With a mechanical or hydrostatic-mechanical, superimposed, steering gear with a steering gear part and a driving transmission part, as is revealed in DE 38 33 784 A1. For this, a zero-shaft propelled by the steering gear part and the performance exchange from the inner drive chain to the outer drive chain is intended to be made mechanically by the driving transmission part.

[008] DE 100 05 527 A reveals a diesel electric drive system with each of the two chains assigned its own electrical drive system, whereby no mechanical connections exist between them. The power transmission between the left and right side takes place exclusively in an electrical way, what permits a space-favorable arrangement of the drive components. However, it requires an efficient electrical system and high performance electrical drive engines.

[009] EP 0 304 594 A, likewise, shows a diesel electric, drive system which, in addition, exhibits a mechanical superimposed steering gear. For drive and

guidance drive in each case, an electrical driving motor of a different size is intended. With this drive system, the power transmission between the left and the right side takes place exclusively mechanically. This well-known drive system is, however, very complex and not optimal as far as space constrictions are concerned. There is needed not only a diesel engine and a complex mechanical superimposed steering gear, but beyond that still another high performance generator and two electrical drive engines. Traveling straight ahead avoids drive engine stress and the installed performance of the guidance driving motor is not activated.

[010] WO 02/083483 A shows a drive system, with which homogeneous electrical drive machines are arranged on each side and with which, in addition, a central third electric motor is intended as a guidance engine. Finally, U.S. Patent No. 5,445,234 shows, as most state of the art, the drive system for a vehicle with a skid steering element under consideration. This exhibits one left and one homogeneous right electrical drive engine. This electrical drive system serves both electrical drive engines at the same time, as well as drive and steering trains. The fully installed electrical, drive power is available for traveling straight ahead. The power transmission between the left and right side takes place partly mechanically and partly electrically.

[011] A gear unit is arranged on each side of the planetary gears. The planet pinion cages of these two gear units form the two drives, which affect the tracks. The sun gear of the left gear unit becomes propelled over a spur gear stage of the left drive engine and the sun gear of the right gear unit over a spur gear stage of the right drive engine. The two internal gears of the left and right gear unit are turning rigidly connected by a connecting shaft. In addition, a gear train is arranged between the sun gear of the left gear unit and the sun gear of the right gear unit, which also couples the two drive engines with one another. Thus, now while driving along curves, the two drive engines can be operated with different numbers of revolutions; this gear train concentrically exhibits a differential gear.

[012] The task of the invention is to indicate a generically-conforming drive system for a vehicle with a skid steering element which gets along without such a concentric differential gear.